REMARKS

The above amendments to the above-captioned application, in conjunction with the contemporaneously filed Request for Continued Examination (RCE), along with the following remarks are being submitted as a full and complete response to the Office Action dated September 27, 2011. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

As outlined above, claims 1-16, 18-20, 22-24 and 62-66 are pending in this application, wherein claims 1, 6, 7, 10, 16 and 22 have been amended, new claims 65 and 66 have been added, and claims 3-5 and 18-20 have previously been withdrawn from consideration. This listing of claims will replace all prior versions, and listings, of claims in the application.

Oath/Declaration

In the outstanding Office Action, the objection to the oath/declaration was maintained as being defective with regard to properly identifying the foreign application to which the present application claims priority. In maintaining the oath/declaration rejection, the Office Action indicated that the Application Data Sheet ("ADS") submitted on June 27, 2011 was not accepted, since it was not labeled "Supplemental ADS," in accordance with M.P.E.P. § 601.05. Contemporaneously submitted with this response, Applicants have submitted a substitute Application Data Sheet, labeled "Supplemental Application Data Sheet," in accordance with M.P.E.P. § 601.05. In view of the now submitted Supplemental Application Data Sheet, Applicants respectfully request that the objection to the declaration be withdrawn.

Claim Objections

Claims 6 and 7 were objected to for not being in proper dependent claim form for depending from claim 1, rather than claim 2. By this Amendment, Applicants have amended claims 6 and 7 to now depend from claim 2, thereby obviating the objection to claims 6 and 7.

Claim Rejections: 35 U.S.C. § 103

Claims 1, 2, 6-16, 22-24 and 62-64

In the Final Office Action, the 35 U.S.C. § 103(a) rejections to claims 1, 2, 6-16, 22-24 and 62-64 were maintained, based on Woo et al. (U.S. Patent No. 5,631,236) (hereinafter "Woo") in view of Bryan et al., "Evidence for an Alternative Mechanism for Maintaining Telomere Length in Human Tumors and Tumor-Derived Cell Lines," 2000, Nat. Med., v.3:12714 (of record, item CV on 09/09/2008 IDS) (hereinafter "Bryan"). Contrary to this rejection, Applicants respectfully submit that, in view of the currently claimed method, the cited prior art, and the following remarks, claims 1, 2, 6-16, 22-24 and 62-64 will be found to be novel and in no way obvious from Woo in view of Bryan.

I. Woo in view of Bryan fail to teach or in any way make obvious all claim elements

Applicants respectfully submit that Woo in view of Bryan fail to teach or in any way make obvious all claim elements to which the claimed method is directed. For example, as recited in claim 1, the present method is directed to treating individuals suffering from cancer comprising administering to the individual a therapeutically effective amount of a composition comprising an inhibitor or antagonist of reverse transcriptase encoded by L-1 (LINE-1) retrotransposon in the cells of the individual, wherein the cancer cells show alternative lengthening of telomeres and wherein the inhibitor or antagonist blocks the lengthening of telomeres in telomerase negative cells, to thereby limit the occurrence or the proliferation of the cancer cells. Accordingly, the present method is specifically directed to treating telomerase negative cancer cells by targeting reverse transcriptase encoded by L-1 (LINE-1).

The present method is based on the present inventors discovering that by using a therapeutically effective amount of a composition comprising an inhibitor or antagonist of reverse transcriptase encoded by L-1 (LINE-1) retrotransposon in telomerase negative cells, i.e. cells having alternative lengthening of telomeres, one can block the lengthening of telomeres in these telomerase negative cells.

A. Woo in view of Bryan discloses a complete different method from the method claimed

Applicants respectfully submit that, based on a complete and thorough understanding of Woo in view of Bryan, it will be determined that a combined disclosure is directed to a completely different method for treating cancer than the present method. Woo in view of Bryan describes a specific method for achieving tumor regression in an individual only if there is both (i) the expression of thymidine kinase in cancer cells following HSV-TK carrying virus vector transfection of cancer cells, i.e. genetic transformation of target cells, and (ii) treatment of the genetically transformed cells with ganciclovar ("GCV").

Furthermore, the complete disclosure of Woo teaches one of ordinary skill in the art that the aforementioned elements (i) and (ii) must be administered in the aforementioned order, i.e. first (i), and then (ii). For example, see Woo, column 2, lines 42-44.

The present method achieves a limitation in the occurrence or proliferation of cancer cells without the HSV-TK genetic transformation of target cancer cells which is a requirement of the Woo method. Unlike Woo, which requires a genetic transformation of cells, the present method achieves a therapeutic treatment in a completely different method in which an inhibitor or antagonist of reverse transcriptase encoded by L-1 (LINE-1) retrotransposon is administered to cancer cells showing alternative lengthening of telomeres. Prior to the present invention, one of ordinary skill in the art would not have known or in any way been led to treat an individual by administering the claimed inhibitor or antagonist to individuals having cells which are telomerase negative without the genetic transformation essential to the Woo method.

Moreover, in view of Woo, Applicants unexpectedly and surprisingly achieved a cancer treatment which does not require HSV-TK genetic transformation of target cancer cells. Evidence of this can be found in the present specification as filed, which include the working examples in which the claimed method is shown to have efficacy in treating telomerase negative cells without an HSV-TK genetic transformation, as required by Woo.

B. Woo in view of Bryan teaches away from the claimed method

Furthermore, Applicants respectfully submit that Woo in view of Bryan teach away from the claimed method. As discussed above, Woo necessarily teaches one of ordinary skill in the art that, in order to treat an individual with GCV, one must necessarily genetically transform the

target cell. Nowhere in Woo or Bryan or anywhere in the art is there any disclosure which would lead one to disregard the clear teaching of Woo, which necessarily discloses that one must genetically transform a target cell in order to treat cancer. Therefore, Woo teaches away from the claimed method, which does not have a gene transformation step.

C. There is no reasonable expectation of success of a viable cancer treatment without the genetic transformation in view of Woo

Furthermore, Applicants respectfully submit that one of ordinary skill in the art would not have had a reasonable expectation of success in modifying Woo in view of Bryan to arrive at the claimed method which does not require the genetic transformation disclosed in Woo. Nowhere in the art is there any disclosure which would lead one of ordinary skill in the art to believe that the present method would succeed in treating cancer without the genetic transformation step of Woo. In fact, the evidence in Woo teaches one of ordinary skill in the art that the Woo method would fail without a genetic transformation because "[o]nly the mice treated with the ganciclovir and AD/HSV-TK show tumor regression." Woo, column 5, lines 15-35.

It must be emphasized that, in order for a prior art reference to anticipate or make obvious a claimed invention, the prior art reference must enable one of ordinary skill in the art to practice the invention as claimed. *Elan Pharma. Inc. v. Mayo Found.*, 68 U.S.P.Q.2d 1373 (Fed. Cir. 2008) and *In re Wands*, 858 F.2d 371, 377; 8 U.S.P.Q. 1400, 1404 (Fed. Cir. 1988). Further, the prior art must allow one of ordinary skill in the art to practice the invention without undue experimentation (*In re Wands*). Factors to consider in determining whether undue experimentation is required include the state-of-the-art, level of predictability in the art, existence of working examples, and the amount of direction by the author/inventor of the prior art (hereinafter collectively referred to as "the Wands' factors") (*Elan Pharma.*).

All of the Wands' factors weigh against finding that Woo in view of Bryan enable one of ordinary skill in the art to practice the invention as claimed. For example, Woo in view of Bryan provide (1) no examples of any effective methods which do not require gene transformation, and (2) no direction to use a method without gene transformation, and (3) the level of predictability in the art of treating cancer is low.

D. The claimed method necessarily excludes the genetic transformation steps of Woo

Applicants respectfully submit that the claimed method necessarily excludes the genetic transformation step in Woo. Applicants acknowledge that, during examination, claims are to be given their "broadest reasonable interpretation." However, the broadest reasonable interpretation is "the broadest reasonable interpretation consistent with the specification." M.P.E.P. § 2111 and *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). Moreover, claims are to be read "in light of the specification as it would be interpreted by one of ordinary skill in the art." In the present application, both the express language of the rejected claims and the specification require administering an inhibitor or antagonist of reverse transcriptase to specific individuals to thereby limit the occurrence or proliferation of cancer cells. Nowhere claimed or anywhere in the specification is there any disclosure of a genetic transformation. However, the examples of the present specification support efficacy of the claimed method which limits the occurrence or proliferation of cancer cells without a genetic transformation step.

Moreover, Applicants submit that the Examiner's interpretation of the rejected claims is overly broad and unreasonably broad. Applicants note that the rejected independent claims recite the "comprising" language. However, the broadest interpretation rubric, coupled with the term "comprising," does not necessarily permit interpretation of claims to embrace anything remotely related to the claimed invention. Claims must be construed "in light of the specification and the teachings of the underlying patent [the Woo patent]." Applicants also acknowledge that a claim must recite essential elements or critical features of an invention in the body of the claim.

In accordance with U.S. patent practice, the present claims recite essential elements or critical features of an invention in the body of the claim, consistent with the description of the invention in its specification. In that vein, the express language of the claims and the specification require that the tumor cells show alternative lengthening of telomeres, and that the inhibitor or antagonist of reverse transcriptase encoded by L-1 (LINE-1) retrotransposon block lengthening of telomeres in telomerase negative cells, i.e. the claims recite essential elements or critical features of its invention in the body of each of the claims.

Based on the foregoing, Applicants respectfully submit that the claimed method excludes a gene transformation step.

E. **Summary**

In view of the foregoing, Applicants respectfully submit that the present claims are not obvious from Woo in view of Bryan. One of ordinary skill in the art would not have developed the present method, which treats telomerase negative cells by administering an inhibitor or antagonist of reverse transcriptase encoded by L-1 (LINE-1) retrotransposon, to limit the occurrence or proliferation of cancer cells. The prior art of Woo and Bryan are directed to two completely different methods which include different administering steps to treat cancer. One of ordinary skill in the art would not have modified the disclosures of Woo in view of Bryan to in any way be led to the claimed method. In view of the foregoing, Applicants respectfully request that the rejection to the claims be withdrawn.

Double Patenting Rejection

Claims 1, 2, 6-16, 22-24 and 62-64

Claims 1, 2, 6-16, 22-24 and 62-64 were provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 59-85 of co-pending Application No. 12/070,923. Claims 1, 2, 6-16, 22-24, 62, 63 and 64 were provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-11 and 16-33 of co-pending Application No. 11/920,668. Claims 1, 2, 6, 10, 14, 16 and 24 were provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claim 46 of co-pending Application No. 12/225,199.

Without addressing the merits of the aforementioned three double patenting rejections, and in order to advance the prosecution of the present case to allowance, with this response, Applicants have submitted Terminal Disclaimers, thereby obviating the provisional double patenting rejections.

Added New Claims

Finally, by this Amendment, Applicants have added new claims 65 and 66 based on previously claimed and disclosed subject matter. Therefore, added new claims 65 and 66 do not constitute new matter.

Further, Applicants respectfully submit that added new claims 65 and 66 recite additional novel and non-obvious subject matter over the prior art, which will be apparent from an examination of claims 65 and 66, the cited prior art, and the prior discussion.

Specifically with regard to the subject matter of claim 65, the claimed method recites identifying and selecting individuals suffering from a cancer having cancer cells which exhibit alternative lengthening of telomeres and/or are telomerase negative which express L-1 (LINE-1). Applicants respectfully submit that, prior to the present invention, one of ordinary skill in the art would not have identified and selected individuals suffering from cancers which exhibit alternative lengthening of telomeres and/or are telomerase negative for treatment by a method which targets L-1 (LINE-1). Woo specifically discloses a method of treating cancer cells using a technique which targets gene transfected cells. Although Woo in view of Bryan may, *arguendo*, disclose that the treatment of Woo might inherently benefit telomerase negative cells or cells expressing L-1 (LINE-1), from Woo in view of Bryan, one of ordinary skill in the art would not have been led to specifically select individuals which are telomerase negative and express L-1 (LINE-1). The combined disclosure of Woo in view of Bryan is a method specifically targeting telomerase positive cells, based on the mechanism disclosed in Woo. Therefore, one of ordinary skill in the art would not have selected individuals which are telomerase negative, expressing L-1 (LINE-1), as one of ordinary skill in the art would not have considered that the method of Woo would be applicable to telomerase negative cells, as claimed.

Furthermore, although Bryan shows that ALT^+ are telomerase negative, Bryan does not teach or in any way make obvious that L1RT is involved in the lengthening of telomeres in telomerase negative cells and that ganciclovir is an inhibitor of this enzyme or that ganciclovir can block the lengthening of telomeres in telomerase negative cells. Therefore, one of ordinary skill in the art would not have been led to select individuals with cancer cells which are telomerase negative, expressing L1RT, for a treatment which includes administering a composition which is an inhibitor or an antagonist of reverse transcriptase encoded by L-1 (LINE-1) retrotransposon in cells of these individuals, as claimed.

With regard to the subject matter of claim 66, Applicants respectfully submit that, in view of the discussion above, one of ordinary skill in the art would not have been led to a method of treating an individual suffering from cancer using a method which consists essentially of administering to the individual a therapeutically effective amount of a composition comprising essentially an inhibitor or antagonist of reverse transcriptase encoded by L-1 (LINE-1) retrotransposon in cells of the individual, and a pharmaceutically acceptable carrier, wherein the cancer cells show alternative lengthening of telomeres and wherein the inhibitor or antagonist is ganciclovir and blocks lengthening of telomeres in telomerase negative cells to thereby limit the occurrence or proliferation of cancer cells.

Conclusion

In light of the Amendments and Remarks, Applicants respectfully request early and favorable action with regard to the present application, and a Notice of Allowance for all pending claims is earnestly solicited.

Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and telephone number indicated below.

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